AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

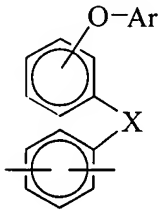
LISTING OF CLAIMS:

1. (currently amended): A polymer electrolyte membrane obtained by subjecting an ion-conducting, aromatic polymer membrane to a hot-water treatment, said ion-conducting, aromatic polymer membrane having a maximum water absorption in a range of 80-300 weight % based on its dry weight before the hot-water treatment, wherein said ion-conducting, aromatic polymer membrane is a sulfonated polyarylene membrane, and wherein said sulfonated polyarylene membrane is a polymer electrolyte membrane subjected to a hot-water treatment comprising immersing said membrane in hot water at 80-95°C for 0.5-5 hours.

Claims 2 - 3. (canceled)

4. (currently amended): ~~The~~ A polymer electrolyte membrane ~~according to claim 2,~~ obtained by subjecting an ion-conducting, aromatic polymer membrane to a hot-water treatment, said ion-conducting, aromatic polymer membrane having a maximum water absorption in a range of 80-300 weight% based on its dry weight before the hot-water treatment, wherein said ion-conducting, aromatic polymer membrane is a sulfonated polyarylene membrane, and wherein said sulfonated polyarylene is a sulfonated arylene copolymer obtained by introducing a sulfonic group into a side chain of a copolymer comprising

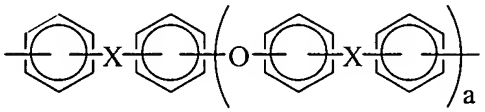
30-95 mol % of a first aromatic monomer unit represented by the following chemical formula (1):



(1)

wherein Ar is an aryl group, and X is a bivalent electron-attractive group selected from the group consisting of -CO-, -CONH-, $-(CF_2)_p-$ wherein p is an integer of 1-10, $-C(CF_3)_2-$, -COO-, -SO- and $-SO_2-$, and

70-5 mol % of a second aromatic monomer unit represented by the following chemical formula (2):



(2)

wherein X is the same as in the chemical formula (1) and may be the same as or different from each other, and *a* is an integer of 0-3.

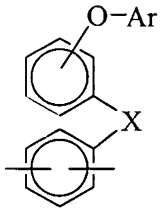
5. (currently amended): A membrane electrode assembly comprising a pair of electrodes, and a polymer electrolyte membrane sandwiched by both electrodes, said polymer electrolyte membrane being obtained by subjecting an ion-conducting, aromatic polymer membrane to a hot-water treatment, said ion-conducting, aromatic polymer membrane having a maximum water absorption in a range of 80-300 weight % based on its dry weight before said hot-water treatment, wherein said ion-conducting, aromatic polymer membrane is a sulfonated polyarylene membrane, and wherein said sulfonated polyarylene membrane is subjected to a hot-

water treatment by immersion in hot water at 80-95°C for 0.5-5 hours by itself or in the form of a membrane electrode assembly.

Claims 6 - 7 (canceled).

8. (currently amended): ~~The~~ A membrane electrode assembly ~~according to claim 6,~~ comprising a pair of electrodes, and a polymer electrolyte membrane sandwiched by both electrodes, said polymer electrolyte membrane being obtained by subjecting an ion-conducting, aromatic polymer membrane to a hot-water treatment, said ion-conducting, aromatic polymer membrane having a maximum water absorption in a range of 80-300 weight% based on its dry weight before said hot-water treatment, wherein said ion-conducting, aromatic polymer membrane is a sulfonate polyarylene membrane, and wherein said sulfonated polyarylene is a sulfonated arylene copolymer obtained by introducing a sulfonic group into a side chain of a copolymer comprising

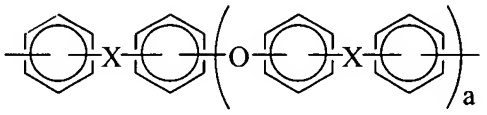
30-95 mol % of a first aromatic monomer unit represented by the following chemical formula (1):



(1)

wherein Ar is an aryl group, and X is a bivalent electron-attractive group selected from the group consisting of -CO-, -CONH-, $-(CF_2)_p-$ wherein p is an integer of 1-10, $-C(CF_3)_2-$, -COO-, -SO- and $-SO_2-$, and

70-5 mol % of a second aromatic monomer unit represented by the following chemical formula (2):



(2)

wherein X is the same as in the chemical formula (1) and may be the same as or different from each other, and *a* is an integer of 0-3.

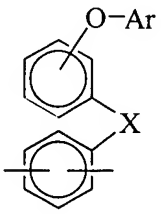
9. (currently amended): A polymer electrolyte fuel cell constituted by stacking a plurality of membrane electrode assemblies via separator plates, each membrane electrode assembly comprising a pair of electrodes and a polymer electrolyte membrane sandwiched by both electrodes, said polymer electrolyte membrane being obtained by subjecting an ion-conducting, aromatic polymer membrane to a hot-water treatment, said ion-conducting, aromatic polymer membrane having a maximum water absorption in a range of 80-300 weight % based on its dry weight before the hot-water treatment, wherein said ion-conducting, aromatic polymer membrane is a sulfonated polyarylene membrane, and wherein said sulfonated polyarylene membrane is subjected to the hot-water treatment by immersion in hot water at 80-95°C for 0.5-5 hours by itself or in the form of a membrane electrode assembly.

Claims 10-11 (canceled).

12. (currently amended): ~~The~~ A polymer electrolyte fuel cell ~~according to claim 10,~~ constituted by stacking a plurality of membrane electrode assemblies via separator plates, each membrane electrode assembly comprising a pair of electrodes and a polymer electrolyte

membrane sandwiched by both electrodes, said polymer electrolyte membrane being obtained by subjecting an ion-conducting, aromatic polymer membrane to a hot-water treatment, said ion-conducting, aromatic polymer membrane having a maximum water absorption in a range of 80-300 weight% based on its dry weight before the hot-water treatment, wherein said ion-conducting, aromatic polymer membrane is a sulfonated polyarylene membrane, and wherein said sulfonated polyarylene is a sulfonated arylene copolymer obtained by introducing a sulfonic group into a side chain of a copolymer comprising

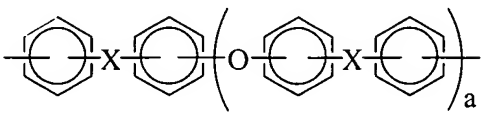
30-95 mol % of a first aromatic monomer unit represented by the following chemical formula (1):



(1)

wherein Ar is an aryl group, and X is a bivalent electron-attractive group selected from the group consisting of -CO-, -CONH-, $-(CF_2)_p-$ wherein p is an integer of 1-10, $-C(CF_3)_2-$, -COO-, -SO- and $-SO_2-$, and

70-5 mol % of a second aromatic monomer unit represented by the following chemical formula (2):



(2)

wherein X is the same as in the chemical formula (1) and may be the same as or different from each other, and *a* is an integer of 0-3.

13. (withdrawn): A composite polymer electrolyte membrane comprising a matrix made of a first sulfonated aromatic polymer having a high ion exchange capacity, and a reinforcing material made of a second sulfonated aromatic polymer having a low ion exchange capacity in the form of fibers or a porous membrane.

14. (withdrawn): The composite polymer electrolyte membrane according to claim 13, wherein both of said first and second sulfonated aromatic polymers are a non-fluorinated, sulfonated aromatic polymer.

15. (withdrawn): The composite polymer electrolyte membrane according to claim 14, wherein said first sulfonated aromatic polymer and said second sulfonated aromatic polymer have the same skeleton except for ion exchange capacity.

16. (withdrawn): The composite polymer electrolyte membrane according to claim 13, wherein said first sulfonated aromatic polymer has an ion exchange capacity of 1.0-2.8 meq/g, and said second sulfonated aromatic polymer has an ion exchange capacity of 0.5-1.5 meq/g.

17. (withdrawn): The composite polymer electrolyte membrane according to claim 13, wherein H^+ in sulfonic groups of said second sulfonated aromatic polymer is at least partially substituted by Na^+.

18. (withdrawn): The composite polymer electrolyte membrane according to claim 15, wherein both of said sulfonated aromatic polymers contain phenylene groups.

19. (withdrawn): The composite polymer electrolyte membrane according to claim 18, wherein both of said first and second sulfonated aromatic polymers are sulfonated polyetheretherketone.

20. (withdrawn): A method for producing a composite polymer electrolyte membrane comprising a matrix made of a first sulfonated aromatic polymer having a high ion exchange capacity, and a reinforcing material constituted by a fibrous product made of a second sulfonated aromatic polymer having a low ion exchange capacity, said method comprising using a casting method to form said composite polymer electrolyte membrane, said casting method comprising uniformly dispersing said fibrous product of said second sulfonated aromatic polymer in a solution of said first sulfonated aromatic polymer.

21. (withdrawn): The method according to claim 20, wherein a non-fluorinated, sulfonated aromatic polymer is used as both of said first and second sulfonated aromatic polymers.

22. (withdrawn): The method according to claim 20, in which said first sulfonated aromatic polymer and said second sulfonated aromatic polymer are obtained by sulfonating aromatic polymers having the same skeleton structure to such an extent as to have different ion exchange capacities.

23. (withdrawn): The method according to claim 22, wherein said first sulfonated aromatic polymer has an ion exchange capacity of 1.0-2.8 meq/g, and said second sulfonated aromatic polymer has an ion exchange capacity of 0.5-1.5 meq/g.

24. (withdrawn): The method according to claim 20, wherein H^+ in sulfonic groups of said second sulfonated aromatic polymer is at least partially substituted by Na^+.

25. (withdrawn): The method according to claim 20, wherein both of said sulfonated aromatic polymers contain phenylene groups.

26. (withdrawn): The method according to claim 25, wherein both of said sulfonated aromatic polymers are sulfonated polyetheretherketone.

27. (withdrawn): A method for producing a composite polymer electrolyte membrane comprising a matrix made of a first sulfonated aromatic polymer having a high ion exchange capacity, and a reinforcing material constituted by a porous membrane made of a second sulfonated aromatic polymer having a low ion exchange capacity, said method comprising impregnating said porous membrane of said second sulfonated aromatic polymer with a solution of said first sulfonated aromatic polymer.

28. (withdrawn): The method according to claim 27, wherein a non-fluorinated, sulfonated aromatic polymer is used as both of said first and second sulfonated aromatic polymers.

29. (withdrawn): The method according to claim 27, in which said first sulfonated aromatic polymer and said second sulfonated aromatic polymer are obtained by sulfonating aromatic polymers having the same skeleton structure to such an extent as to have different ion exchange capacities.

30. (withdrawn): The method according to claim 29, wherein said first sulfonated aromatic polymer has an ion exchange capacity of 1.0-2.8 meq/g, and said second sulfonated aromatic polymer has an ion exchange capacity of 0.5-1.5 meq/g.

31. (withdrawn): The method according to claim 27, wherein H^+ in sulfonic groups of said second sulfonated aromatic polymer is at least partially substituted by Na^+.

32. (withdrawn): The method according to claim 27, wherein both of said sulfonated aromatic polymers contain phenylene groups.

33. (withdrawn): The method according to claim 32, wherein both of said sulfonated aromatic polymers are sulfonated polyetheretherketone.

34. (withdrawn): A polymer electrolyte fuel cell constituted by stacking a plurality of membrane electrode assemblies via separator plates, each membrane electrode assembly comprising a pair of electrodes and a composite polymer electrolyte membrane sandwiched by both electrodes, said composite polymer electrolyte membrane comprising a matrix made of a first sulfonated aromatic polymer having a high ion exchange capacity, and a reinforcing material constituted by a second sulfonated aromatic polymer having a low ion exchange capacity in the form of fibers or a porous membrane.

35. (withdrawn): The polymer electrolyte fuel cell according to claim 34, wherein both of said first and second sulfonated aromatic polymers are a non-fluorinated, sulfonated aromatic polymer.

36. (withdrawn): The polymer electrolyte fuel cell according to claim 34, wherein said first sulfonated aromatic polymer and said second sulfonated aromatic polymer have the same skeleton except for ion exchange capacity.

37. (withdrawn): The polymer electrolyte fuel cell according to claim 34, wherein said first sulfonated aromatic polymer has an ion exchange capacity of 1.0-2.8 meq/g, and said second sulfonated aromatic polymer has an ion exchange capacity of 0.5-1.5 meq/g.

38. (withdrawn): The polymer electrolyte fuel cell according to claim 34, wherein H^+ in sulfonic groups of said second sulfonated aromatic polymer is at least partially substituted by Na^+.

39. (withdrawn): The polymer electrolyte fuel cell according to claim 34, wherein both of said sulfonated aromatic polymers contain phenylene groups.

40. (withdrawn): The polymer electrolyte fuel cell according to claim 39, wherein both of said first and second sulfonated aromatic polymers are sulfonated polyetheretherketone.